PSYCHOLOGY 230: Introduction to Cognitive Psychology

Course Description:

- In this course, you will be introduced to the field of cognitive psychology, as we investigate the *mechanisms of human thinking*. We'll cover basic mental processes such as how our brains let us "see" the world, how our perceptions depend on our current state of *attention*, and how *memories* can change over time. As we seek to better understand the human mind, we'll discuss *language* abilities and the *mental representation* of concepts and schemas. We'll look at mistakes that people make, from simple visual illusions to errors in higher-level *decision-making*, and we'll discuss how these "failures" provide unique insights into the mechanisms of human thinking.

Objectives:

- Learning objectives for this course include acquiring a deep understanding of core concepts of human cognition, and appreciating the scientific process whereby real-world issues are investigated through controlled laboratory experimentation. Another key objective is to develop your skill at presenting material concisely and with impact, through writing assignments, critical evaluations of recent research articles, and an online presentation.

Prerequisites:

- Psychology 101

Course Resources:

- Textbook: Sternberg, R. J. & Sternberg, K. (2012). *Cognitive Psychology* (6th edition). Belmont, CA: Wadsworth.
- Sakai website: sakai.unc.edu PSYC230.001.SP16
- Articles: On Sakai site under Resources Articles for Reaction Papers

Grading:

Exam 1	100 pts
Exam 2	100 pts
Final Exam	100 pts
Reaction papers (2 x 35 pts each)	70 pts
Final Project	30 pts
TOTAL	**400 points**

Final course grades will be based on the following points:

A = 400-374 pts	B+ = 357-346 pts	C+ = 317-306 pts	D+ = 277-266 pts
A- = 373-358 pts	B = 345-334 pts	C = 305-264 pts	D = 265-238 pts
	B- = 333-318 pts	C- = 293-278 pts	F = <238 pts

Class Schedule:

- Please note that modifications to the syllabus may need to be made during the semester; therefore it is important to attend class in order to stay up to date on the class schedule and requirements

Week	Date	Topic	Textbook
1		**Introduction to Cognitive Psychology**	
	Jan. 11	Introductions: Thinking & Thinkers	
	Jan. 13	History: the People and the Issues	Ch. 1
	Jan. 15	Methods of Cognitive Psychology	Ch. 1 & 2
Week 2		**The Brain & Cognition**	
	Jan. 18	No class – MLK	
	Jan. 20	The Brain & History	Ch. 2
	Jan. 22	Cognitive Neuroscience: Methods	Ch. 2
Week 3		**Perception**	
	Jan. 25	Perception: History & Theories	
	Jan. 27	Perception: Vision	Ch. 3
	Jan. 29	Perception: Not Vision	
Week 4		**Attention**	
	Feb. 1	Attention: Theories	Ch. 4
	Feb. 3	Group Discussion → required reading= Article #1: "Driven to Distraction…"	
	Feb. 5	Attention: Visuo-Spatial Selection	Ch. 4
Week 5			
	Feb. 8	Attention & Consciousness	
	Feb. 10	Wrap-up & Preparation for Exam 1	
	Feb. 12	**Exam 1**	
Week 6		**Memory: Models**	
	Feb. 15	Models of Memory	Ch. 4 & 5
	Feb. 17	Working memory	Ch. 5
	Feb. 19	Exceptional Memories (Good & Bad)	Ch. 5
Week 7		**Memory: Encoding & Retrieval**	
	Feb. 22	Group Discussion → Required reading = Article #2: "Interviewing Witnesses…"	
	Feb. 24	Encoding	Ch. 6
	Feb. 26	Retrieval (& False Memories)	Ch. 6
Week 8		**Memory: Storage**	
	Feb. 29	Storage (Pictures vs. words)	Ch. 7
	March 2	Visual Imagery	Ch. 7
	March 4	Cognitive Maps	Ch. 7
Week 9		**Memory: Organization of Knowledge**	
	March 7	Group Discussion → Required reading = Article #3 "Google Effects on memory…"	
	March 9	Types: Declarative vs. Procedural	Ch. 8
	March 11	Primal & Parallel Processing	Ch. 8
Week 10			
	March 14, 16, 18	**No class: SPRING BREAK**	
Week 11			
	March 21	Wrap up memory section	
	March 23	**Exam 2**	

	March 25	**No class: University Holiday**	
Week 12		**Language: Listening & Reading**	
	March 28	Language: Syntax & Semantics	Ch. 9
	March 30	Reading	Ch. 9
	April 1	Discourse	Ch. 9
Week 13			
	April 4	Group Discussion → required reading = Article #4 "Perspectives in consumer psychology"	
	April 6	Language & Thought	Ch. 10
	April 8	Neuropsychology & Non-humans	Ch. 10
Week 14			
	April 11	Social Aspects of Language	Ch. 10
	April 13	Group Discussion → required reading = Article #5 "Incidental…decisions"	
	April 15	Decision Making	Ch. 12
Week 15		**Reasoning & Problem Solving**	
	April 18	Reasoning: deductive & Inductive	Ch. 12
	April 20	Problem Solving	Ch. 11
	April 22	Expertise	Ch. 11
Week 16		**Creativity/Final Projects & Discussions**	
	April 25	Creativity	Ch. 11
	April 27	Presentation of Final Projects & Discussion/Semester Wrap Up	

Finals Weeks – Friday, May 6th – Final Exam ***8 AM***

- **Articles for Reaction papers and Discussion groups (posted on Sakai):**
  - Strayer, D. L. & Johnston, W. A. (2001). Driven to distraction: Dual-task studies of simulated driving and conversing on a cellular telephone. Psychological Science, 12, 462-466.
  - Zaragoza, M. S., Payment, K. E., Ackil, J. K., Drivdahl, S. B., & Beck, M. (2001). Interviewing witnesses: Forced confabulation and confirmatory feedback increase false memories. Psychological Science, 12, 473-477.
  - Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. Science, 333, 776-778. ** Reaction paper # 1 **due** 3/7/16 before 2:30pm **
  - Sanford, A. J., Fay, N., Stewart, A., & Moxey, L. (2002). Perspective in statements of quantity with implications for consumer psychology. Psychological Science, 13, 130-134.
  - Ackerman, J. M., Nocera, C. C., & Bargh, J. A. (2010). Incidental haptic sensations influence social judgements and decisions. Science, 328, 1712-1715. [DOI:10.1126/science.1189993] ** Reaction paper # 2 **due** 4/13/16 before 2:30pm **
- **Details on grading:**
  - **Exams**: There will be **3** exams. The exams will be cumulative in regards to the research methods, although the majority of each exam will be on the specific

topics covered in that section of the course. The final exam is given in compliance with UNC final exam regulations and according to the UNC Final Exam calendar. Each exam will cover material from the lectures, readings, and classroom discussions --all information in these sources may be included on exams. The expectation is that exams will not be curved. However, if the exam appears to have been extremely difficult (e.g., the class average was 70% or lower), a curve may be applied. Exams are closed-book: These exams are to be taken with no access to materials and with no assistance from anyone else.

- **Exam Days:** In order to take an exam, you must bring the following with you:
  - Your Student Identification card
  - Two #2 pencils
  - A scantron sheet (available at the bookstore)
- **Exam Policies**: Students who arrive to the exam late will only be admitted if no students have finished the exam. Once the first student has finished and left the exam, no one else will be seated for the exam. Late arriving students who are admitted to the exam will not be given additional time. Excused absences require signed notes from the infirmary or Dean's office; other special circumstances must be discussed with me immediately afterward, in person. No make-ups will be given for unexcused absences. Make-up exams may be different than the original exam, and may include different proportion of multiple choice vs. essay questions.

- **Reaction Papers**:
  - For the articles assigned on March 7th and April 13th, you are required to turn in a Reaction Paper. The core of the paper must be 5 pages in length **(5 pages maximum),** not including the cover page and reference page. Hardcopies of papers should be typed (12 point font, with 1-inch margins, and double-spaced) and turned in at the beginning of class on the due dates. Electronic copies of papers must also be uploaded to your dropbox folder on our Sakai course website *before* class on the due date. No late papers will be accepted without proof of University-approved absence. Your paper must include:
    - **Cover Page (1 page).** The cover page must include this (and only this) information: Your name and Student ID number; Course name & number; Assignment (e.g., Reaction paper #1); Date; Signed Honor Pledge (written out and signed).
    - **Article Review & Critique (~2.5 pages).** Explain how the experiments have furthered our understanding of this area of cognition. Provide the critical details necessary to support the claims. What did the authors do? Describe the most critical parts of the **methods** used to investigate the questions posed by the authors. Briefly summarize the findings (the critical pieces; this assignment stresses conciseness, so you need to identify the most critical *methods* and the most critical *results*). Discuss the authors' interpretations of the results. Are their interpretations consistent with their results? Are there other interpretations that might apply? It is important that you concisely describe the strengths and weaknesses of each article, in relation to the methodology used. Note: You should describe the strengths and weaknesses of the science, not the

writing style. Finally, when citing articles in your paper, you must use the APA format described in the *"How-to" guide to references* (on our sakai site, in the Articles folder).

- **Proposed Experiment (~2.5 pages).** Describe a critical issue that is still unknown and how you will investigate that issue. Provide critical details, such as the parameters of your experiment and the analysis techniques. State your hypothesis, and explicitly describe the independent and dependent variables. Finally, describe a possible scenario for a pattern of results that could be obtained from your experiment. Provide a theoretically-driven interpretation of those possible results. Admit the limitations that still exist even though your experiment was thoughtfully designed. Explain how your results could increase our knowledge of this area of cognition. Please note that your experiment should not simply be localizing the cognitive process to the brain (i.e., not just adding fMRI or EEG), and it should not simply be seeing if the process is the same or different in a patient or development group; rather, your experiment needs to be focused on the ***cognitive process*** itself. Wrap up this section with a short "connections" paragraph, linking your proposed experiment to something in the real world, or something in another class, and explain how your experiment could reveal how a core mechanism of cognitive processing has importance beyond the laboratory. **For this section, you must also find one new recent scientific, empirical article (published between 2010-2016, and reporting at least one experiment in full) that relates to your proposed experiment. You must refer to that new article in this section (with an appropriate APA citation); you may use this article to either help set-up the rationale for your experiment, or to later link your experiment to a broader issue (or both). You do not need to describe the new article you find in the same detail as the main article for this assignment.
- **Reference page (1 page).** Provide a separate page for listing the articles that you cite within your paper. The top of this page should be title "**References**". Formal reference citation of the articles must use the APA format as described in the *"How-to" guide to references*, posted on our sakai course website, in the Articles folder.
- **Please note:** your reaction papers must be solely your own work and **in your own words**; **do not use any direct quotes** from any of the articles. Points will be automatically deducted for any and all direct quotations.
- A purpose of this assignment is for you to hone your ability to write concisely, an important but difficult skill to develop. **Grading will be based on style and grammar, as well as content.** Points will be deducted for exceeding the page limits, but keep in mind that it will be challenging to fit all the required information into this relatively short paper. You must prioritize what's most important, and work to make the prose succinct.

- **Final Project:**
  - The final project can be worked on at any time during the semester; it is a good idea to not wait until the end of the semester to start it. I suggest not uploading

your very final version of project until close to the end of the semester, however, to ensure you incorporate the knowledge you'll gain in this course.

- The final project is a VoiceThread that you create (and share with your TA's and me). It should be on a topic that is of interest to you. The final voicethread should be a concise summary of a recent empirical article (2010-2016) you have found that uses **cognitive psychology methods** to investigate a **topic of cognition** that you find especially compelling.
- Your Voicethread project should be precisely 5 minutes long, and must include audio comments from you to step the viewer through the project. The presentation should consist of:
  - Explanation of the topic in general, and briefly why you think it's interesting and important
    - Provide short examples (real world or laboratory), if helpful.
  - Description of the critical details of the research article you chose. Please note: it must be an article published between 2010-2016 in a scientific journal; it must include an experiment (or multiple experiments) - book chapters, newspaper articles, and review articles won't be acceptable.
    - Include the critical methods, in detail, and *at least one* figure or table of the most critical results.
  - Your critique of the research (e.g., Did they do some things exceptionally well? Why are these results important? Are there problems with the theory or with the experiment? What are the limitations?). You should explicitly refer to concepts we've covered in class in your critique.

- **Policies**
  - **Electronics in the classroom:** No Cell phone use; No Music or Game devices; No internet use; No laptop use, *except* for note-taking for this class, participating in class polls, or preparing group discussion presentations.
  - **Academic Integrity and University Deadlines:** All University rules and policies concerning academic integrity and University deadlines will be in effect for this course. As in all Carolina courses, **the Honor Code is in effect**. This Code applies to all exams and class projects. Although you may study together for exams, all exams are to be taken without the assistance of other people, books, or notes. Ideas or information in your written work and class presentations must be appropriately referenced, whether the original source is written or verbal. Five or more words taken verbatim from any source must be placed in quotation marks with the source appropriately referenced. If you have questions about any of these matters, please ask your TA's or me.
    - The Instrument of Student Judicial Governance requires that you **sign a pledge** on all written work that says "On my honor, I have neither given nor received unauthorized aid on this assignment."
  - **Attendance:** Regular class attendance is a student obligation (plus, it generally helps a great deal on exams and projects). If you do not attend a class, it is your responsibility to find out what you missed, including any announced changes in the syllabus schedule. [Note: the schedule may change slightly throughout the semester, so be sure to find out what you miss, if you must miss class].

- **Course grades:** Final grades are not subject to negotiation or change unless a clerical error was made.
- **Policies for Class Discussions:** Diversity of opinions is welcome and is highly useful – working through differing opinions on scientific matters can lead to a much richer and deeper understanding of the material. However, it is critical that we all always respect each other and show respect for each other's questions, viewpoints, and opinions.
- **Group Discussions:** For each large (5-7 students) group discussion (e.g., the discussion for each of the 5 assigned articles), we will assign a different role to each person in the group to facilitate the discussions. Everyone should be prepared for any role (even if you've done one role in an earlier discussion, you may have to fill that role again, if there are absences in your group). At the beginning of the group discussion time, you will break into groups of ~6, and be assigned the roles – all students should participate, but the person in each assigned role must take charge of that aspect of the discussion to ensure it is fully covered.
    - ***Discussion Leader***
        - Assigns Roles; starts each topic of discussion; calls upon members to contribute (try to distribute time evenly).
        - Quickly outlines plan for how much time to spend on Exp1, Exp 2, etc., as well as stopping discussion and moving to next section; allow enough time for creation of presentation.
        - The Discussion leader must turn in the completed "role assignment" form at the end of each discussion.
    - ***Evaluator***
        - Leads the critique of article. Evaluates whether, and how, the experiment(s) accurately tested what the authors set out to test.
    - ***Technical Expert***
        - Needs to be prepared to quickly find and report on critical details of article, and should be prepared with an understanding of the general methodology. May also need to quickly search literature for articles related to the group's critiques and/or proposed experiments.
    - ***Experimenter***
        - Starts and leads discussion of possible *new* experiments to address limitations with the experiments in the article, and/or to extend the research in important new directions.
    - ***Devil's advocate***
        - Takes a friendly, but contrarian approach – raises counterarguments, to challenge the group to think through criticisms and new experimental designs more thoroughly.
    - ***Reporter***
        - Prepares 1-2 slides for each "part" of discussion ("parts" = discussion topics as outlined at start of each discussion period).
        - If the group is called upon, the reporter must plug in their laptop and orally present their critique and/or new experiment.

- The Reporter must upload the group's slides to Dropbox on Sakai at the end of class.